

PROJECT				UNIVERSAL POLAR STEREOGRAPHIC TRANSFORMATIONS <small>For use of this form, see FM 3-34.331; the proponent agency is TRADOC.</small>			
LOCATION				ORGANIZATION			
ZONE		UNIT Meter		FALSE NORTHING (FN) 2,000,000 Meters		FALSE EASTING (FE) 2,000,000 Meters	

STATION						STATION					
Ø						Ø					
λ						λ					
sin λ			cos λ			sin λ			cos λ		
tan λ			cot λ			tan λ			cot λ		
R						R					
N'			E'			N'			E'		
N			E			N			E		

STATION						STATION					
Ø						Ø					
λ						λ					
sin λ			cos λ			sin λ			cos λ		
tan λ			cot λ			tan λ			cot λ		
R						R					
N'			E'			N'			E'		
N			E			N			E		

GEOGRAPHIC COORDINATES TO UPS GRID COORDINATES			
NORTH ZONE		SOUTH ZONE	
λ less than 90° subtract N' from FN λ greater than 90° add N' to FN λ east, E' plus λ west, E' minus		λ less than 90° add N' to FN λ greater than 90° subtract N' from FN λ east, E' plus λ west, E' minus	
N=FN+N'		N'=R cos λ	
		E=FE+E'	
		E'=R sin λ	

UPS GRID COORDINATES TO GEOGRAPHIC COORDINATES			
BOTH ZONES			
N'=N-2,000,000 E'=E-2,000,000		If N' greater than E' use $\tan \lambda$ If E' greater than N' use $\cot \lambda$	
		$\frac{E'}{N'}$ $\frac{N'}{E'}$	
NORTH ZONE		SOUTH ZONE	
If N less than FN use λ as solved If N greater than FN subtract λ from 180° If E less than FE λ is west		If N less than FN subtract λ from 180° If N greater than FN use λ as solved If E less than FE λ is west	
$R = \frac{E'}{\sin \lambda}$		Ø by inverse interpolation of R	

COMPUTED BY		DATE (YYYYMMDD)		CHECKED BY		DATE (YYYYMMDD)	
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